

B07-O12

ENVIRONMENTAL CONDITIONS FOR POLAR LOWS IN THE NORDIC SEAS

Thomas Spengler (*Geophysical Institute, University of Bergen, Norway*)

Annick Terpstra (*Geophysical Institute, University of Bergen, Norway*)

Clio Michel (*Geophysical Institute, University of Bergen, Norway*)

thomas.spengler@gfi.uib.no

Environmental Conditions for Polar Lows in the Nordic Seas Co-authors: Annick Terpstra Thomas Spengler Abstract: Polar lows are maritime cyclones occurring in cold air outbreaks in the high latitudes. Their formation is still not well understood but previous studies have shown that the wind shear in their environment during formation is an important factor. The wind shear can be categorized into two main classes, forward and reverse shear. Forward shear indicates conditions when the thermal wind is aligned with the steering-level wind and reverse shear when the thermal wind has an opposite direction to the steering-level wind. An existing track dataset (STARS) over the Nordic Seas covering 9 years (2002-2011) is used to investigate the large-scale environment for PL formation. Our results show that these two types of wind shear feature very different environmental conditions at the initiation time of polar lows. We also present a further analysis based on automatic detected polar low tracks using an existing detection and tracking algorithm from the University of Melbourne, Australia. The analysis is based on ERA-Interim data from 1979 to 2014, which allows us to perform a long-term climatology of polar low densities and characteristics as well as the associated environmental conditions during their formation and development.